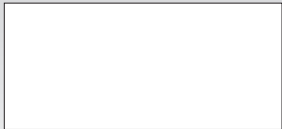


## Where to get Assistance?

Contact the North Carolina Forest Service or city arborist in your area for help in identification of Southern Pine Beetle infestation and for information on tree removal or treatment.



FOR HELP, CONTACT  
THE FOLLOWING:

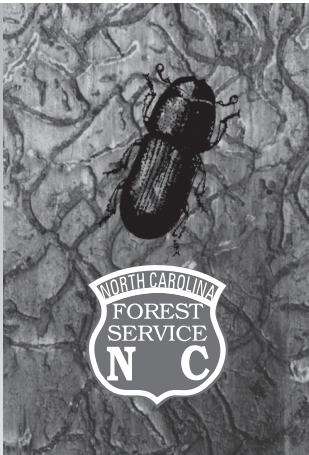


North Carolina  
Division of Forest Resources  
919-733-2162

[www.dfr.state.nc.us](http://www.dfr.state.nc.us)



10,000 copies of this brochure were printed at a cost of \$1385.00 or .13 each.



North Carolina  
Division of Forest Resources



*Prepared by Coleman Duggett, North Carolina Division of Forest Resources  
and Patrick Barry, USDA Forest Service*

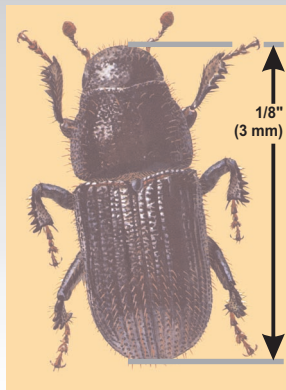
*Published by the North Carolina Division of Forest Resources  
North Carolina Department of Environment and Natural Resources*



# Southern Pine Beetles



**Destroyer of Southern Pine**



# Southern Pine Beetle

## Destroyer of Southern Pine

### What Is The Southern Pine Beetle?

The southern pine beetle is a small, reddish-brown or black beetle, about the size of a grain of rice. Adult beetles attack all species of pine native to North Carolina. They bore through the bark of the trees and construct winding tunnels in the inner bark where they lay eggs. Small c-shaped "grubs" or larvae hatch from the eggs and feed on the inner bark of the tree. When they complete their development, the grubs transform into pupae and then into adult beetles. The adult beetles are strong fliers and when they emerge from an infested tree, they fly to attack other pines. The life cycle from egg to adult is about 30 to 40 days under favorable conditions. Five or more generations of beetles per year are common in the South.

Trees under attack are girdled as the beetles build their egg galleries beneath the bark. In addition, the beetles introduce wood-staining fungi into the trees, which clogs the trees' water-conducting tissues and hastens their death.

Southern pine beetle activity runs in cycles: during some years the insect may attack trees in epidemic proportions, while in others, beetle infestation may be low. It is consistently, however, the most serious insect pest in the South and it causes serious losses of urban and forest trees in North Carolina.



### 3. Needles turn yellow, then red-brown

### How Can It Be Controlled?

Prevention is the key to avoiding losses from beetle attack. Keeping trees healthy is the best defense. Studies have consistently shown that thinning dense stands is one of the most effective ways to reduce beetle-related timber loss. Properly thinned stands are not as susceptible to the beetle, and when attacks do occur in thinned stands, they are not as intense as in unthinned stands.

Infested trees continue to attract more beetles until they are completely overwhelmed. An infested tree cannot be saved. Prompt removal of all infested trees is the best way to reduce spread to healthy pines. The infested pines should be removed before the new beetles emerge. Care should be taken to locate and remove all green infested trees that have not yet begun to turn yellow. Also, a buffer strip of uninfested green trees approximately 100' wide should be removed as a precaution against further beetle spread. If all infested trees are not removed, an even greater number of trees may be killed by the next beetle generation.

If complete removal of infested trees is not possible, then they should be cut down and sprayed with insecticide. Care should be taken to thoroughly cover all infested bark. Contact your local forester, ranger, arborist, or county agricultural agent for up-to-date information on currently registered products for use against the southern pine beetle.

Natural enemies of the southern pine beetle also are important in its control. Extremely low winter temperatures may kill over-wintering beetles and high temperatures slow beetle spread. In some cases, woodpeckers destroy large numbers of beetles. Tree removal or pesticide application, however, if done properly and properly, are the best techniques for reducing losses suffered by the forest owner. Landowners in North Carolina are urged to inspect their pine trees frequently.

### How Can You Recognize Southern Pine Beetle Damage?

The southern pine beetle can kill groups of pines ranging in size from a few trees to many acres. In the spring and summer, needles of infested trees turn yellow or straw colored over the entire crown within two to three weeks after the tree has been attacked before finally turning reddish-brown. Attacked trees may remain green for longer periods during the winter.

Reddish-brown particles of boring dust pushed from the beetles' entrance holes may be seen on bark crevices and bases of dead and dying trees. Small light yellow to reddish-brown tubes, often resembling popcorn, also may be seen on the bark in the middle and upper sections of the trees.

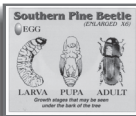
To determine if a dying tree is being attacked by the southern pine beetle, remove a section of bark. Examine its inner section for the typical winding, s-shaped egg galleries: these are a good indication that the southern pine beetle is attacking the tree. If the beetles have not yet emerged, the c-shaped larvae, pupae and new adults may be found by breaking open the bark. In most cases, the beetles have left the tree by the time the needles have turned reddish-brown.



### 1. Winding "S" shaped tunnels in the inner bark



### 2. Pitch Tubes on the bark surface



**USE PESTICIDES  
CAREFULLY  
READ ALL LABELS**

